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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/616,052	07/09/2003	Philip D. Nguyen	2002-IP-007014U1	9517

7590 01/11/2005

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EXAMINER

NEUDER, WILLIAM P

ART UNIT	PAPER NUMBER
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3672

DATE MAILED: 01/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/616,052

Applicant(s)

NGUYEN ET AL

Examiner

William P Neuder

Art Unit

3672

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-49 is/are pending in the application.
- 4a) Of the above claim(s) 38-49 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6, 7, 9-15, 17-23, 25, 26, 28-34, 36 and 37 is/are rejected.
- 7) ☒ Claim(s) 5, 8, 16, 24, 27 and 35 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>7/9/03</u> . | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Election/Restrictions

DETAILED ACTION

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-37, drawn to a method of consolidation, classified in class 166, subclass 292.
- II. Claims 38-49, drawn to a resin composition, classified in class 507, subclass 203.

The inventions are distinct, each from the other because of the following reasons:

Inventions of Group I and Group II are related as composition and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the composition as claimed can be practiced with another materially different composition or (2) the composition as claimed can be used in a materially different process of using that composition (MPEP § 806.05(h)). In the instant case the composition can be used for forming plastic pipe and binding then together or for use as a proppant coating.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

Art Unit: 3672

Because these inventions are distinct for the reasons given above and the search required for Group I is not required for Group II, restriction for examination purposes as indicated is proper.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art because of their recognized divergent subject matter, restriction for examination purposes as indicated is proper.

During a telephone conversation with Mr. Kent on 1/6/05 a provisional election was made without traverse to prosecute the invention of Group I, claims 1-37.

Affirmation of this election must be made by applicant in replying to this Office action.

Claims 38-49 are withdrawn from further consideration by the examiner, 37

CFR 1.142(b), as being drawn to a non-elected invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 3672

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-4,6,7,9-15,17-23,25,26,28-34,36 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brown et al (3681287) in view of Shu (3681287) and Boles et al (4476931) and Powell et al (2004/0154799).

Brown discloses a method of consolidating siliceous materials such as sand using a hardenable resin composition. The resin comprises a furan resin, a solvent, an organosilane coupling agent and an acid catalyst. Brown does not specifically set forth that his process could be used in underground formations to consolidate the formations. Shu teaches that it is known to use furan resins in subterranean wells to consolidate

Art Unit: 3672

formations. It would have been considered obvious to use the resin of Brown for consolidating formations as taught by Shu since Shu teaches that furan resins are used to consolidate formations and the furan resin of Brown is used to consolidate sands and formations are commonly sandstone formations one looking at Brown in view of Shu's teaching would assume the furan resin of Brown could be used to consolidate sandstone formations. Brown also fails to teach using brine preflushes and overflushes. Boles et al teaches that it is known to use a brine preflush containing a surface active agent (cationic surfactant) prior to well treating. Boles uses the preflush containing the cationic surfactant to allow the subsequent treating solution to better wet and penetrate the formation. It would have been considered obvious to use a brine preflush containing a surface active agent as taught by Boles in view of Boles teaching that use of the preflush allows the subsequent treating material to better wet and penetrate the formation. Powell et al teaches that it is known to use a brine overflush for the purpose of removing the treating material from the well and wellbore equipment. It would have been considered obvious to use an overflush in the process of Brown as taught by Powell et al for the purpose of Powell which is to remove the treating fluid from the well and wellbore equipment which prevents undue wear and degradation of the equipment used in the treating operation. As to claims 2 and 21, Boles teaches that the cationic agent is potassium chloride and not sodium chloride as called for in claim 2. As evidenced by their proximity on the periodic table, potassium and sodium share similar chemical characteristics and substitution of sodium for potassium would have been considered an obvious design choice since they are so closely chemically related. As to

Art Unit: 3672

claims 3,6,11,14,17,22,25,30,33 and 36, the exact amount of preflush used and the exact amount of surface active agent used and the amount of solvent used and the amount of organosilane used and the amount of acid catalyst used would have been considered obvious since the amount varies depends significantly on the formation properties of the formation to be treated. (See Boles col. 4, lines 5-19). As to claims 4 and 23, the preferred surface active agent of Boles is cationic perfluorated quaternary ammonium iodide surfactant. This is a cationic surfactant and that is all claim 4 requires. As to claims 7 and 26, the furan resin can be furfuryl alcohol in Brown. Again, the exact amount of resin used would be considered obvious since the exact amount varies significantly depending upon the formation characteristics. As to claims 9 and 28, dioxane can be used as the solvent in brown, since dioxane is closely chemically related to dimethyl, substitution of dimethyl for dioxane would have been considered an obvious design choice. As to claims 10 and 29, tetrahydrofuran can also be used as the solvent and tetrahydrofuran is closely chemically related to furfuryl. As to claims 12,13,31 and 32, Brown teaches that the organosilane can be aminopropyltrioxysilane. Since aminopropyltrioxysilane is very similar to aminopropyltrimethoxysilane, it would have been considered obvious to substitute one for the other. As to claims 15 and 34, Brown teaches that the acid catalyst can be mineral acid salts. As to claims 18 and 37, the brine preflush of Boles is introduced below the fracture pressure. As to claim 19, the afterflush of Powell is introduced below the fracture pressure. As to claim 20, Shu teaches that after the resin hardens the zone can be fractured and propped.

Art Unit: 3672


Allowable Subject Matter

Claims 5,8,16,24,27 and 35 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William P Neuder whose telephone number is 703-308-2150. The examiner can normally be reached on Tuesday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David J Bagnell can be reached on 703-308-2151. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


William P Neuder
Primary Examiner
Art Unit 3672

W.P.N.